

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 21

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BOARD OF PATENT APPEALS
AND INTERFERENCES

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT R. BURCH and ROBERT R. BURCH, JR.

Appeal No. 2003-0645
Application No. 09/245,625

ON BRIEF

Before GARRIS, WARREN and WALTZ, **Administrative Patent Judges**.
WALTZ, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's final rejection of claims 1 through 22 and 25 through 29, which are the only claims remaining in this application.¹ We have jurisdiction pursuant to 35 U.S.C. § 134.

¹ Appellants submitted a minor amendment with the Brief to correct the dependency of two claims (see Paper No. 13 dated Oct. 16, 2001). Although not specifically noted by the examiner (Answer, page 2, ¶(4)), this amendment has been physically entered into the file record, as assumed by appellants (Brief, page 2, ¶(4)). Accordingly, we consider the claims on appeal as amended by Paper No. 13.

According to appellants, the invention is directed to an elastomeric fiber, useful as dental floss, that comprises a therapeutically effective amount of a chemotherapeutic agent imbibed in the fiber (Brief, page 2).

Appellants state that the claims do not stand or fall together (Brief, page 3) and present arguments for each of six groups (Brief, pages 12-15). As correctly noted by the examiner (Answer, page 2), appellants do not provide reasonably specific, substantive arguments for the separate patentability of each group but merely repeat the claim limitations while reiterating that the references of record do not suggest these limitations (e.g., see the Brief, paragraph bridging pages 12-13). Appellants argue that "the differences in what the claims cover" make the claims of Groups II-VI separately patentable (Reply Brief, page 2). However, merely repeating a limitation from one claim in each Group and stating that the references do not suggest this limitation, without more, does not qualify as a specific, substantive argument for separate patentability. See 37 CFR § 1.192(c)(7)(2000), last sentence, which reads "[m]erely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable." For example, assuming *arguendo* that the combination of Burch and Hill is proper, the Burch reference clearly describes

the properties of the elastic fiber as set forth in claim 4 on appeal (i.e., a Group III claim; see Burch, col. 3, l. 59-col. 4, l. 6). Appellants have not identified any specific, substantive reasons for the separate patentability of this claim or any Group III claim other than the reasons given for the Group I claims (Brief, pages 12-13).

Accordingly, we select independent claim 1 as representative of the claims on appeal and decide the ground of rejection in this appeal on the basis of this claim alone. See *In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002) ("If the brief fails to meet either requirement [of 37 CFR § 1.192(c)(7)], the Board is free to select a single claim from each group of claims subject to a common ground of rejection and to decide the appeal of that rejection based solely on the selected representative claim."). Claim 1 is reproduced below:

1. A fiber comprising:

(a) a fiber of an elastomeric polymer capable of imbibing a chemotherapeutic agent; and

(b) a therapeutically effective amount of the chemotherapeutic agent imbibed in the fiber.

The examiner relies upon the following references as evidence of obviousness:

| | | |
|--------------------|-----------|---------------|
| Hill et al. (Hill) | 5,098,711 | Mar. 24, 1992 |
| Burch | 5,433,226 | Jul. 18, 1995 |

The claims on appeal stand rejected under 35 U.S.C. § 103(a) as unpatentable over Burch in combination with Hill (Answer, page 3). We *affirm* this ground of rejection essentially for the reasons in the Answer and those reasons set forth below.

OPINION

The examiner finds that Burch² discloses dental floss fibers with the same structure and properties as recited in the claims on appeal (Answer, page 3). Appellants do not contest this finding but agree with the examiner's further finding that Burch does not teach "impregnating" these dental floss fibers with a chemotherapeutic agent (*id.*; Brief, pages 4 and 8).³ Therefore the

² We note that Burch is also one of the appellants, and the Burch patent is assigned to the real party in interest in this appeal (Delta Dental Hygienics LLC; Brief, page 1, ¶(1)).

³ In the event of further or continuing prosecution of this claimed subject matter, the examiner and appellants should consider the teaching of Burch at col. 9, ll. 16-21, where Burch teaches that the "dental floss of the instant invention" may also comprise added ingredients such as found in U.S. Patent Nos. 2,667,443, 2,772,205, and 5,280,796. These three patents, incorporated by reference into Burch, teach the same or similar methods of adding an active ingredient to the dental floss fiber, as discussed below. The examiner and appellants should consider whether these teachings, applied to the dental floss fiber of Burch, would inherently produce an agent

(continued...)

examiner applies Hill for teaching the loading of multiple stranded or filamented nylon dental floss with chemotherapeutic agents, prepared by dipping the floss into an agitated bath containing the agent (Answer, page 4). From these findings, the examiner concludes that it would have been obvious to load the chemotherapeutic agents of Hill into the floss of Burch to provide an effective means for imparting antimicrobial properties to these fibers (*id.*). We agree.

To establish *prima facie* obviousness, three criteria must be satisfied. There must be shown a reason, suggestion or motivation for making the modification suggested by the examiner in combining references, as well as a reasonable expectation of success in making this modification, and the combination of references must disclose or suggest every limitation of the claimed subject matter. See *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

Appellants argue that there is no motivation to combine the references as proposed by the examiner (Reply Brief, page 6). This argument is not well taken since the examiner has provided a motivation to combine, namely the teaching by Hill of providing

³(...continued)
"imbibed" in a fiber as now claimed.

delivery of chemotherapeutic agents to the oral cavity by incorporation of these agents into floss for improved dental treatment would have suggested such an improvement to the floss disclosed by Burch (Answer, page 4; Hill, col. 2, ll. 35-45; col. 5, ll. 23-43; and col. 6, ll. 11-16).

Appellants also argue that the person of ordinary skill in the art would have no reasonable expectation of success in substituting the elastomeric polymer of Burch for the non-elastomeric polymers of Hill (Brief, pages 8-10; Reply Brief, pages 6-7). Appellants submit that there is nothing in Burch or Hill that suggest that an elastomeric fiber with the recited structure could absorb a therapeutically effective amount of a chemotherapeutic agent (Brief, page 12). These arguments are not persuasive. As correctly stated by the examiner (Answer, pages 4-5), it is the *structure* of the fiber that controls the amount of agent that can be "loaded" (as taught by Hill), and both Burch and Hill teach dental floss fiber with multiple strands or filaments (see Burch, Figure 3 and accompanying text; see Hill, col. 6, ll. 17-35; col. 8, ll. 30-33; col. 11, ll. 45-50; and col. 13, ll. 58-66). Therefore we agree with the examiner that one of ordinary skill in this art would have had a reasonable belief that the multifilament elastomeric floss fiber of Burch would have been successfully

loaded with active ingredient in the same manner as the multifilament floss structure of Hill. Appellants have not shown any indication in the prior art that the chemical identity of the floss fiber would have any effect on the loading or incorporation of the agent into the floss fiber. To the contrary, Burch teaches that chemotherapeutic agents may be incorporated into the elastomeric floss of his invention (col. 9, ll. 16-21), incorporating by reference three references which teach adding chemotherapeutic agents to floss fibers by methods which are the same or similar to those disclosed and claimed by appellants.⁴

Appellants argue that the combination of Burch and Hill does not produce the claimed invention since Hill does not teach imbibing or absorbing a chemotherapeutic agent into the fiber (Brief, page 7). Appellants further argue that Hill "teaches away" from imbibing or absorbing ingredients into the dental floss since this reference teaches that it is "critical" that loading of the active ingredient be accomplished into the interstitial spaces of the floss (Brief, page 10; Reply Brief, page 3). Appellants submit that a dictionary definition for "imbibed" means "absorbed" and

⁴ E.g., see U.S. Patent No. 2,772,205, where the active ingredient may be adsorbed upon the dental floss by treating any suitable floss with an aqueous solution of this active ingredient (col. 2, ll. 40-53), and U.S. Patent No. 2,667,443, where the yarn (floss) is soaked in a solution of water and the chemical agent (col. 2, ll. 1-5).

thus "imbibed in the fiber" as claimed is clearly distinguished from the teachings of Hill that the "compositions employed are contained essentially in the interstitial spaces between the fibers of the floss." Brief, pages 16-18.

During prosecution before the examiner, the language of the claims is given its broadest reasonable meaning as ordinarily used, as the language would be understood by one of ordinary skill in this art, as defined or enlightened by the original disclosure. See *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). Neither appellants nor the examiner has pointed to any definitions of "imbibed" in the original disclosure. However, we note that each of the dictionary definitions cited by the examiner and appellants define "imbibed" as "absorbed" (Brief, page 18; final Office action, Paper No. 10, page 5). Accordingly, we determine that there is no argument directed to the meaning of "imbibed."⁵ The issue is whether the multifilament fiber structure of Hill "loaded" with active ingredient in the interstitial spaces reads on the chemotherapeutic agent "imbibed in the fiber" as recited in claim 1 on appeal.

⁵ Note also that "imbibition" is defined as the absorption of a liquid by a solid or a gel and that an "absorbent" is defined as "[a]ny agent which imbibes or attracts moisture...". See *Hackh's Chemical Dictionary*, 3rd ed., pp. 2-3 and 431, The Blakiston Co., Inc., 1953 (a copy is attached to this decision).

We agree with the examiner that an active agent "imbibed in the fiber" as claimed, when construed as broadly as reasonably possible, encompasses the loaded multifilament structure of Hill. As discussed above, "imbibed" means "absorbed." In turn, "absorb" means "to take in through or as if through pores or interstices:soak in or up."⁶ Therefore the taking in of active ingredient into the interstitial spaces of the multifilament structure of Hill would have reasonably been considered as "imbibed" into the fiber.

Appellants argue that there is no evidence of record to support the examiner's assertion that "imbibing" is equivalent to coating (Reply Brief, page 4). This argument is not well taken since the examiner is not asserting that imbibing is equivalent to coating in any situation but the "imbibing" of active ingredient into the interstitial spaces of Hill is equivalent to coating each of the many individual strands (Answer, page 4).

For the foregoing reasons and those set forth in the Answer, we determine that the examiner has established a *prima facie* case of obviousness in view of the evidence. Appellants argue that, with respect to the claims of Groups V and VI, unexpected results

⁶ See Webster's II, New Riverside University Dictionary, pp. 68-69, The Riverside Publishing Co., 1984 (a copy is attached to this decision).

have been shown (Brief, pages 13-15; Reply Brief, pages 7-9). Accordingly, we begin anew and review the evidence for and against obviousness. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We agree with the examiner (Answer, page 5) that the evidence submitted by appellants (Example 1 and Comparative Example 1) is not commensurate in scope with the subject matter claimed. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). It is incumbent upon the appellants to show that the evidence submitted as showing "unexpected results" is commensurate with or predictive of results commensurate in scope with the claimed subject matter. Appellants state that Example 1 shows a spandex fiber takes up 2300 ppm of fluoride (Brief, page 13; Reply Brief, page 7). However, this statement is a generalization since this Example actually is directed to the imbibition of sodium fluoride into a specific weight (12.3 g) of spandex of 540 denier (see the specification, page 13, ll. 20-33). None of the claims in Groups V and VI are limited to the specific fluoride used in Example 1, nor is any claim limited to the specific fiber and denier used. We also note that claims 14 and 19 are limited to a process in which the aqueous solution of a fluoride salt is at a pH of greater than about 1 while Example 1 of the specification does not recite any pH values.

Appellants state that Comparative Example 1 shows that "a conventional dental floss" takes up 385 ppm of fluoride (Brief, page 14; Reply Brief, page 7). We agree with the examiner (Answer, page 5) that appellants have not shown that the "conventional" dental floss of Comparative Example 1 is a comparison with the closest prior art, i.e., Hill. See *In re Burckel*, 592 F.2d 1175, 1179, 201 USPQ 67, 71 (CCPA 1979) (A showing of unexpected results must compare the claimed subject matter with the closest prior art to be effective). There is no evidence of record showing what constitutes a "conventional" dental floss. The burden of explaining the evidence of "unexpected results" rests with appellants. See *Ex parte Gelles*, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Int. 1992). Furthermore, we note that Comparative Example 1 is limited to the use of sodium fluoride and the materials and procedure of Jørgensen et al. (specification, page 14) are not disclosed.

Based on the totality of the record, including due consideration of appellants' arguments and evidence, we determine that the preponderance of evidence weighs most heavily in favor of obviousness. Accordingly, we affirm the examiner's rejection of claims 1-22 and 25-29 under 35 U.S.C. § 103(a) over Burch in combination with Hill.

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AFFIRMED

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